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6-1982

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POSSIBLE EVIDENCE OF FISH-EATING BY A WILD LESSER SANDHILL CRANE FROM THE CENTRAL PLATTE VALLEY, NEBRASKA

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Abstract

Centrarchid fish scales, probably those of the Green Sunfish (*Lepomis cyanellus*), were found in the crop of a Lesser Sandhill Crane (*Grus canadensis canadensis*) from the Central Platte Valley, Nebraska, in March, 1976. Scales were primarily from age class II fish. Fish total length was estimated at 100.60 mm.

Introduction

Wild Sandhill Cranes (*Grus canadensis*) are highly opportunistic feeders. Information on the wild foods of Sandhill Cranes has been provided by Nelson (1887), Hammerstrom (1938), Manning *et al.* (1956), Madsen (1967), Harvey *et al.* (1968), Lewis (1976), Guthery (1976), Littlefield (1976), Boise (1977), Mullins and Bizeau (1978), Lewis (1979), and Reinecke and Krapu (1979). Early reports of food types were summarized by Walkinshaw (1949).

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Evidence for fish-eating by a *captive* Sandhill Crane has been cited by Conover (1926), Bartlett and Bartlett (1975), and by Boise (1977). Walkinshaw (1949) stated that his captive Sandhill Crane refused to eat fish and reported that an acquaintance in Huron, Ohio kept Sandhill Cranes to which he fed fish, but these birds eventually died. Walkinshaw also noted that Audubon never observed Cranes eating fish in the wild.

Boise (1977) and Lewis (1979) reported probable fish consumption by wild Cranes. Boise reported evidence of the Ninespine Stickleback (*Pungitius pungitius* L.: Gasteroidea) in the diet of the Lesser Sandhill Crane (*G. c. Canadensis*) in Alaska. Lewis (1979) reported finding scales from the Shad (Clupeidae), Minnow (Cyprinidae), and Sucker (Catostomidae) in the gizzards of Lesser Sandhill Cranes on the North Platte River in Nebraska.

Methods

A crop analysis was performed on a Lesser Sandhill Crane carcass (exposed culmen length, 9.5 cm; length of tarsus, 20 cm; length of middle toe with claw, 8.5 cm; length of closed wing, 52 cm). The specimen was collected and eviscerated for autopsy 27 March 1976 near Gibbon, Buffalo Co., Nebraska, by Nebraska Game and Parks personnel. The carcass remained frozen until it was examined by the authors. The esophagus was excised, emptied, and rinsed with 50% ethyl alcohol. Plant and animal materials were separated by washing, and were examined under a dissecting microscope. These components were oven-dried at 64°C for approximately 15 minutes and displacement volumes of the components were determined. Fish scales were identified to family using Lagler's (1947) scale key. Total length of the fish from which the scale were derived was calculated using regressions and correction factors from Sprugel (1955) and Carlander (1977), respectively.

Results

The content of the crop is described as follows: 25.000 ml or 99.467% whole corn kernels, 0.1 ml or 0.398% broken corn and kernel parts, trace (less than 0.001 ml) Lepidoptera larva, and 0.034 ml or 0.135% ctenoid fish scales. Total contents equalled 25.134 ml in volume.

The ctenoid fish scales (N=29) were identified as those of the family Centrarchidae, probably *Lepomis cyanellus*, using Lagler's (1947) key and by comparison with known Green Sunfish scales.

A sample of 14 of the 29 scales (those with clear foci) showed an average anterior radius of 1.6 mm. A plot of fish standard length on total anterior scale radius for *L. cyanellus* by Spreugel (1955) yielded the following linear relationship:

$$L_s = 4.75 \text{ mm} + 1.176818 S$$

where L_s = Standard Length

4.75 mm = Intercept on Length Axis

1.176818 = Regression Coefficient

S = Total Anterior Scale Radius (Corrected for Magnification)

The standard length of the fish was found from this relationship and converted to total length by using a correction factor (1.2) from Carlander (1977) as follows:

$$L_s = 4.75 \text{ mm} + 1.176818 (67.2 \text{ mm})$$

$$L_s = 83.83 \text{ mm}$$

$$\text{Total Length} = 83.83 \text{ mm} (1.2) = 100.60 \text{ mm}$$

The majority of scales appeared to be in age class II, with others in age class I (K.D. Carlander, pers. comm.). These scales were similar in diameter to known *L. cyanellus* scales of the same year classes.

Discussion

Because the gizzard and other organs were excised at the time of collection, we were unable to determine whether the soft parts and bones of the fish, if consumed, had been in the gizzard. Whatever their origin, the eating of entire fish or fish scales attached to other objects resulted in the presence of these scales in this crane's esophagus. If the presence of these scales is a result of *intentional* consumption of fish, then it may also be evidence for a resource that is exploitable by an opportunistic feeder such as the Sandhill Crane. Green Sunfish are known to occur in the Middle Platte Basin (Bliss and Schainost, 1973). This is the first known report of possible consumption of a centrarchid by a wild Sandhill Crane.

Acknowledgement

We would like to thank the Nebraska Game and Parks Commission, specifically Mr. James Hurt, for supplying the *G. canadensis* carcass, and Dr. Kenneth D. Carlander for affirmation of scale identification and scale age and for reading the manuscript. Ms. Mary Nims typed the manuscript.

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